

TERMITOBRACON,  
A TERMITOPHILOUS BRACONID  
FROM BRITISH GUIANA<sup>1</sup>\*

By CHARLES T. BRUES.

(Figs. 42-43)

In the autumn of 1920, I received from Mr. Alfred Emerson a most extraordinary termitophilous Hymenopteron of the parasitic family Braconidæ. During the course of his extensive studies on termites and the other insects which occur with them, carried on in the vicinity of the tropical station of the New York Zoological Society, at Kartabo, British Guiana, Mr. Emerson obtained specimens of both sexes of this strange insect. From observations on its behavior and the reactions of the termites he assures me that it is undoubtedly a true termitophile and his conviction is fully borne out by its structural characteristics.

The males have the eyes and wings greatly reduced in size and the neuration of the latter are consequently highly modified. From observation Mr. Emerson found that they made no attempts to fly, but moved slowly about the nest among the termites which displayed no hostility, but appeared rather to be friendly toward them. A worker termite was once observed by Mr. Emerson to lick one of the females. The females, in contrast to the males, have the wings fully developed and are undoubtedly able to fly readily. This disparity is in itself very unusual, as there are scarcely any Hymenoptera, or other insects for that matter, in which the females are fully winged and the males apterous or partially so. A similar condition does exist, however, in the fig insects of the family Agaonidæ where the females are winged and the males apterous and a group Idarninæ of a related family of Chalcid-flies, the Calli-

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momidæ, parasitic on the fig insects show a similar condition. Another family of Chalcid flies, the Eulophidæ, contains *Melittobia*, a widely distributed genus parasitic on various wasps and bees which is subapterous in the male although the female shows no reduction in wing size, while another Eulophid, *Perissopterus*, parasitic on scale insects, sometimes has subapterous males. In a few other Hymenoptera the male is dimorphic or polymorphic in the development of the wings. Thus the males of a certain species of *Pezomachus* (*P. flavocinctus* Ashm.) belonging to the Ichneumonidæ have three types of males, a fully winged one, a subapterous one and an entirely wingless one, but in this case the female is apterous. Such is the case also in the Bethyloid, *Cephalonomia urichi*, which I have recently shown to have both winged and wingless males. On the other hand the Trichogrammatid *Oöphthora* has winged females and both alate and apterous males. Still more recently Picard has shown that a Braconid (*Sycosoter lavagnei*) parasitic on *Hypoborus ficus* has winged and apterous forms, both sexes being represented by individuals of each type. He has shown further, in this case, that while the four forms occur at the same time, the winged ones are most abundant in warm weather and the wingless ones most numerous in the spring and autumn, while only apterous ones occur during the season of hibernation. Whether the present Braconid may also be dimorphic cannot be stated, but on account of the rarity of such an occurrence, there seems to be no valid reason for assuming that it is.

The male is also much lighter in color than the female, and such is the case also in *Melittobia*, in at least some of the species.

Most termitophilous insects are physogastric, having the abdomen considerably swollen or enlarged and frequently turned either upwards or downwards, out of the plane in which it normally rests. *Termitobracon* shows no distinct physogastry in either sex, but the abdomen of the male is perhaps somewhat larger than usual in other male Braconidæ. It is, however, distinctly curved downwards, and when the body is thus partially curled, the aborted wings rest upon its dorsal

surface with their surface bent in conformity to the latter. This bending takes place almost entirely at two points, the base and apex of the stigma.

Termitobracon appears to be the first Hymenopteron ever found as a termite guest<sup>2</sup>, and is possibly parasitic upon the termites themselves although it is, of course, quite possible that it may attack some other insect which occurs regularly in their nests. I have examined several thousand termites taken from the nest in which the parasites occurred, but have been unable to find any parasitic larvae either in the bodies of the termites, attached to them, or free in the alcohol, so that the host of Termitobracon must remain doubtful. Its size is, however, just about that of the larger termite workers, as might very likely be the case if it should be an internal parasite.

#### *Termitobracon* gen. nov.

*Female*.—Body, including the legs and wings, densely clothed with very fine yellowish hairs. Head strongly transverse; eyes small, hairy; antennae 14-jointed, filiform, the scape short, simple at tip and very closely united with the pedicel; flagellum beyond the third joint marked by fine longitudinal ridges, the first three joints strongly emarginate at tip; ocelli minute, in a small triangle; clypeus semicircular, not emarginate, not horned nor toothed; mandibles small, acute, without teeth near apex. No parapsidal furrows; propodeum simple, convex. Abdomen short, oval, with seven well developed segments, first segment with lateral carinae, but otherwise not sculptured; ovipositor issuing near the middle of abdomen, but not extending far beyond the apex, sheaths slender, but dilated near the apex. Legs rather stout, the basal and apical joints of tarsi elongated, the others very short. Wings rather large,

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<sup>2</sup>Since this was written Cushman (Proc. Entom. Soc. Washington, vol. 25, p. 54, 1923), has described a genus of Braconidae, *Ypsistrocercus*, represented by two species collected in termite nests by Dr. W. M. Mann in Bolivia. *Ypsistrocercus* and *Termitobracon* are quite closely related, but differ in a number of good structural characters in spite of the fact that both occur in the nests of the same species of termite. Cushman has made *Ypsistrocercus* the type of a new subfamily (*Ypsistrocercinae*) to which *Termitobracon* must now be added.

stigma broad, dark, but not heavily chitinized, the radial cell broad, attaining the wing tip; three cubital cells although the transverse cubiti are in great part hyaline; nervulus strongly postfurcal; nervellus interstitial; hind wing without nervulus or marginal vein.



FIG. 42. *TERMITOBRACON EMERSONI* SP. NOV.

Female.

*Male*.—Subapterous, the wings greatly reduced in size, curved over the abdomen at rest and distinctly bent at each end of the stigma, reaching just beyond middle of abdomen. Eyes minute, ocelli wanting. Legs stouter than those of the female. Color of body much lighter.

Type, the following species:

*Termitobracon emersoni* sp. nov.

(Figs. 42-43)

*Female* (Fig. 42).—Length 2.2-2.3 mm. Fuscous, the head black, except about the mouth; thorax distinctly darker than the abdomen, especially in front above; legs brownish yellow, the tibiae and tarsi lighter than the femora. Antennae yellowish,

the first three joints of flagellum much darkened and the last seven joints very pale; clypeus and mandibles, except their black tips, honey-yellow; propleura on anterior edge and spot on mesopleura below, yellow; propodeum anteriorly and at the sides stained with yellow; abdomen darker at the sides of the first segment and along the posterior margins of the second and fourth segments; ovipositor black, its sheaths pale; wings brownish-hyaline, a weak cloud in the upper part of the radial cell; venation dark fuscous. Head two and one half times as broad as thick antero-posteriorly, rounded and narrowed behind the eyes, which are broadly oval, quite small, as long as the

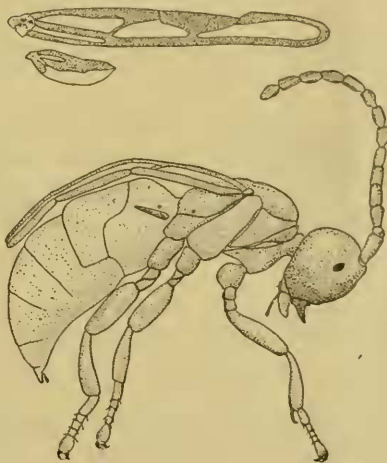


FIG. 43. *TERMITOBRACON EMERSONI* SP. NOV.  
Male.

scape of the antenna; antennae 14-jointed; scape short, the pedicel closely attached to it, rounded; first joint of flagellum short, second to fourth longer, about twice as long as broad; following quite distinctly oval the last pointed at tip. Malar space twice as long as the eye; surface of head smooth; ocelli forming an equilateral triangle. Mesonotum and scutellum smooth and shining, not very strongly convex. Propodeum smooth above, without sculpture. First abdominal segment carinate at the sides, the space between the carinae twice as broad as long; surface smooth and polished as is the remainder of the abdomen; second and third segments of equal length,

together as long as broad, the articulation between them very faint; fourth and fifth segments equal in length and width, each slightly shorter and broader than the third; sixth much longer and narrower; seventh half the length of the sixth; eighth minute; ovipositor but slightly exerted. First section of radius very short; one-fourth as long as the second which is slightly shorter than the third; radial cell attaining the wing tip; cubitus arising at the middle of the basal nervure, the transverse cubiti not complete, the first pigmented, except below, the second indicated by the absence of trichiation; nervulus entering near the middle of the discoidal cell; nervellus interstitial; hind wing with only the basal and submedian vein and a stump of the anal, nervulus wanting; subdiscoidal indicated as a faint cloud extending to the wing margin.

*Male* (Fig. 43).—Length 1.9 mm. Almost entirely light testaceous, the head blackened above, the carinae on the first abdominal segment black and the hind margins of the third to fifth segments infuscated. Eyes much smaller, scarcely as long as the diameter of the pedicel of the antennae.

Four females and three males from Kartabo, British Guiana, collected by Mr. Alfred Emerson in a nest of *Nasutitermes* (N.) *ephratae* (Holmgren), July 28, 1920.

Mr. Cushman has kindly compared a specimen of *Termitobracon* with the unique types of his two species of *Ypsistrocerus* and considers the two genera to be undoubtedly closely related in spite of many obvious differences, some of which may be tabulated as follows:

Maxillary palpi 2-jointed; labial palpi apparently wanting; joints of the filiform antennal flagellum all of similar form; first and second cubital cells fused (female); Stigma narrow (female).....*Ypsistrocerus* Cushman.

Maxillary palpi 3-jointed; labial palpi 2-jointed; basal three joints of antennal flagellum each with an oblique emargination at apex, following joints oval; first and second cubital cells separated (female); Stigma broad (female) .....*Termitobracon* Brues.